

**TWO NEW SPECIES OF ENLINIA FROM THE SOUTHWESTERN UNITED STATES (DIPTERA: DOLICHOPODIDAE)**

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ABSTRACT—*Enlinia arizonica* H. Robinson and *E. texana* H. Robinson are described as new.

The minute flies of the Dolichopodid genus *Enlinia* have proven to be very numerous and widely distributed in the Western Hemisphere. More than 70 species are presently known, mostly from tropical regions (Robinson, 1969), and 5 species have been reported in North America north of Mexico (Robinson & Arnaud, 1970). Two additional species are described here from the southwestern United States on the basis of collections of Dr. Willis W. Wirth.

*Enlinia arizonica* H. Robinson, new species  
fig. 6-9

Male. Length 1.1 mm; wing 1.0 mm by 0.5 mm. Face and front black dulled with brownish-black pollen; eyes contiguous below, anterior facets enlarged, surface with longer rather prominent pale hairs near mouth. Palpus and proboscis dark. Antenna black, all segments small, segment 3 blunt, arista only slightly longer than facial area.

Thorax dark metallic greenish or bluish black slightly dulled with blackish pollen above, denser brownish pollen on pleura; setae dark with pale reflections; about 8 pairs of acrostichals, about 10 pairs of rather small dorsocentrals; scutellum with hind margin evenly curved, with pair of widely separated bristles.

Legs mostly black with dark setae, segments 1 and 2 of fore tarsus whitish. Fore coxa without strong bristles; fore femur (fig. 8) rather broad and flat with series of long curving setae along antero- and postero-ventral margins, those near tip of femur up to twice as long as width of the femur; mid femur (fig. 9) with series of longer erect ventral setae near base with some as long as width of femur; hind femur and all tibiae nearly plain, fore tibia with a long sinuous seta ventrally at tip; hind tibia with a rather long apical ventrally. Fore tarsus (fig. 8) with basal 2 segments broad and compressed, segment 1 with very small black ventral spicule at tip, segment 3 flat and asymmetric, last 2 segments slender, lengths of segments from base as 4-2-2-2-4; mid tarsus plain, very elongate and slender, lengths of segments as 8-5-4-2-3; hind tarsus as 6-6-5-3-3, basitarsus with more erect slender hairs ventrally.

Wing (fig. 6) broadly oblong, clear with brown veins; costa rather arched beyond vein 1; vein 2 rather close to costa, scarcely turned forward at tip; vein 3 bending distinctly backward in distal half, ending before broad tip of wing; vein 4 straight, strongly divergent from 3; crossvein rather short, half as long as last of vein 5; vein 6 represented by slight fold well in from margin; setae of hind margin short. Knob of halter black.

Abdomen (fig. 7) slightly longer than thorax, cylindrical, blackish, setae dark; sternum 3 with slender erect projection from middle of hind margin. Hypopygium small, capping tip of preabdomen, brown; lamella very long slender, ribbonlike, with a crest of strong black setae near base and a few more further along on outer margin, fringes of finer pale hairs along both margins; a pair of inner appendages shorter, rodlike.

Holotype male and 1 male paratype: Arizona, Cochise Co., Portal, S.W. Res. Sta. 5-9 June 1972. W. W. Wirth. Malaise trap. USNM type no. 72434.

The new species is close to *Enlinia taeniocaudata* H. Robinson & P. H. Arnaud, but the male wing lacks the sinus in the hind margin, the ventral setae of the fore femur are longer and more irregular, the basal segments of the fore tarsus are white, and the hypopygial appendage is somewhat shorter with fewer setae in the basal crest.

Collected with *Enlinia arizonica* was a female that may belong to the species but has too many differences to be certain. The eyes are not contiguous, anterior facets are not enlarged and the lower surface does not have longer hairs; the face is as wide below as the width of the first antennal segment. The legs are wholly blackish; fore femur with only a series of short rather erect hairs ventrally; fore tarsus segments as 4-2-1.5-1.5-3; mid tarsus as 6-3-2.5-2-3; hind tarsus as 8-6-4-3-3, with ventral hairs of basitarsus not slender but rather erect. Wing more oval, with costa less arched; vein 2 more arched in basal half, straighter and further from costa in distal half; vein 3 nearly straight; vein 4 slightly bent at crossvein, very slightly arched in last part; crossvein about  $\frac{2}{3}$  as long as last of vein 5. Anal margin not as sharply rounded toward base. Abdomen more metallic dark greenish black.

Also collected at the same time were 3 male specimens of *Enlinia californica* H. Robinson & P. H. Arnaud, previously known only from San Mateo County, California.

*Enlinia texana* H. Robinson, new species  
fig. 1-5

Male. Length 1.0 mm; wing 1.0 mm by 0.4 mm. Face and front greenish to bluish black dulled with slight pollen; eyes contiguous below, anterior facets enlarged. Palpus and proboscis dark. Antenna black, all segments small, segment 3 blunt, arista only slightly longer than facial area.

Thorax dark metallic bluish green with slight pollen, more blackish on pleura; setae dark with pale reflections; about 8 pairs of acrostichals, 9-10 pairs of rather small dorsocentrals; scutellum with hind margin evenly curved, with a pair of widely separated bristles.

Legs blackish with dark setae. Fore coxa with strong bristle on inner anterior surface; anteroventral surface of fore femur with series of rather erect short setae  $\frac{1}{4}$ - $\frac{1}{3}$  as long as width of femur, stouter erect seta at distal  $\frac{1}{3}$  on anterior sur-

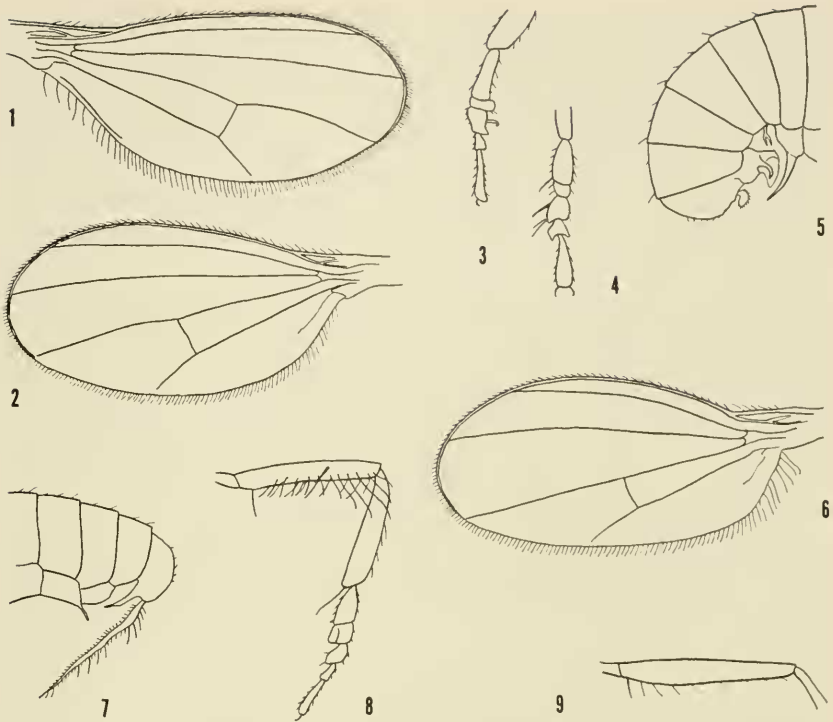


Fig. 1-9, *Eulinia* species. 1-5, *E. texana*: 1, male wing; 2, female wing; 3, male fore tarsus, lateral view; 4, male fore tarsus, anterior view; 5, male abdomen. Fig. 6-9, *E. arizonica*, male: 6, wing; 7, abdomen; 8, fore leg; 9, middle femur.

face; middle femur with 2-3 very long erect setae at base ventrally followed by 3-4 short small erect setae; hind femur and all tibiae plain, tibiae with only minute dorsal setae, mid tibia with series of close set short setae ventrally scarcely distinct from other rows. Fore tarsus (fig. 3-4) distorted, segment 1 broad with broader tip, segment 2 very short and slightly projecting ventrally, segment 3 set anteriorly at tip of segment 2, oblong and bulging anteriorly at base, with rather stout hooked pale seta ventrally, 1 long stout seta and 2-3 long slender setae on inner anterior surface, segment 4 small with short very narrow base, segment 5 with elongate slender base, lengths of segments from base as 4-1-3-1.5-4; mid tarsus plain, lengths of segments as 5-3-2.5-2.5-3; hind tarsus plain, segments as 7-5-1-3-4.

Wing broadly oval, more sharply rounded and longer fringed along middle of anal margin, wing clear with veins black; veins 2 and 3 slightly diverging, slightly curving backward, vein 2 more bulging near basal  $\frac{1}{3}$ , nearly straight at tip; vein 4 with rather sharp angle at crossvein, more strongly arching in last part; crossvein perpendicular to base of vein 4, about as long as last of vein 5; vein 6 represented by faint streak along base of anal margin. Knob of halter black.

Abdomen (fig. 5) about as long as the thorax, stout, cylindrical but curving downward, metallic greenish black, setae dark; a long stout curved horn on middle of sternum 3, a slender forked appendage on sternum 4. Hypopygium dark brown, rounded with broad thin armatures bearing a forked appendage having curved branches; outer lamellae very small, white, covered with short pale hair.

Female. Plain. Face about as wide below as antennal segment 1, anterior eye facets not enlarged. Fore coxa and tarsus plain, segments of fore tarsus as 4-1.5-1.5-1.5-3; mid femur and tibia without distinctive ventral setae. Wing (fig. 2) similar to male but anal margin slightly broader with vein 6 in from edge. Abdomen plain, not curving downward.

Holotype male, allotype female, and 4 male and 2 female paratypes: Texas, Llano River, Kimble Co., 23 May 1972. W. W. Wirth. Malaise trap. USNM type no. 72435.

The new species is a member of the typical group as indicated by the seta on the fore coxae and the marginal sixth vein of the wing. The species is one of those having the larger sternal appendages and more metallic green abdomen but is distinct from close relatives by the lack of spots or notable vein distortion in the wings.

A single female collected at the same locality seems to represent another undescribed species. The tarsi of the female are whitish basally as in *Eulinia ciliata* H. Robinson but the face is broader and the abdomen is brown.

#### REFERENCES

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Robinson, H. and P. H. Arnaud, Jr. 1970. The genus *Eulinia* Aldrich in America north of Mexico (Diptera: Dolichopodidae). *Occas. Papers Calif. Acad. Sci.* 83:1-9.

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### NOTES ON THE MATING HABITS OF SOME CARABIDAE (COLEOPTERA)

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ABSTRACT—The mating habits of *Pterostichus chalcites* Say are described, and the duration of coitus is given for 20 species of ground beetles.

#### MATING HABITS OF *P. chalcites* SAY

The literature contains little work on the mating activities of the family Carabidae. *Pterostichus chalcites* is distributed in eastern North America, north to Québec, west to Indiana, and south to Louisi-